RESEARCH, DEVELOPMENT & TECHNOLOGY TRANSFER
QUARTERLY PROGRESS REPORT

Wisconsin Department of Transportation
DT1241 7/2010

INSTRUCTIONS:
Research project investigators and/or project managers should complete a quarterly progress report (QPR) for each calendar quarter during which the projects are active.

WisDOT research program category: ☐ Policy research ☒ Wisconsin Highway Research Program ☐ Other ☐ Pooled fund TPF#		Report period year: 2010 ☐ Quarter 1 (Jan 1 – Mar 31) ☐ Quarter 2 (Apr 1 – Jun 30) ☐ Quarter 3 (Jul 1 – Sep 30) ☒ Quarter 4 (Oct 1 – Dec 31)
Project title: Effective Depth of Soil Compaction in Relation to Applied Compactive Energy – Fine-Grained Soil Supplement Project		
Project investigator: Dante Fratta	Phone: 265-5644	E-mail: fratta@wisc.edu
Administrative contact: Peg Lafky	Phone:	E-mail:
WisDOT contact: Bob Arndorfer	Phone:	E-mail: robert.arndorfer@dot.state.wi.us
WisDOT project ID: 0092-08-11	Other project ID:	Project start date: 10/10/2007
Original end date: 4/10/2009	Current end date: 3/30/2011	Number of extensions: 1

Project schedule status:
☒ On schedule ☐ On revised schedule ☐ Ahead of schedule ☐ Behind schedule

Project budget status:

Total Project Budget	Expenditures Current Quarter	Total Expenditures	% Funds Expended	% Work Completed
$49,000.00	$12,000.00	$20,000.00	40%	35%

Project description:
The Wisconsin Department of Transportation has requested the evaluation of appropriate lift thickness for embankment construction under common compactors equipment used in Wisconsin. The lift thickness has direct engineering and economic implications in the design, construction and performance of geotechnical systems such as embankment, foundations and roads construction. The Geological Engineering research group at University of Wisconsin has proposed a series of experimental tests to monitor the compaction effort applied and how the soil properties varied with it. In addition, field monitoring of the compaction process will be performed during the next summer season. Data collected taken from the experimental tests and the field monitoring, recommendation of appropriated lift thickness will be given considering type of soil and compactor equipment.

The proposed work plan complements the study performed on the evaluation of effective depth of compaction on coarse-grained soils. This study will collect and evaluate data from actual embankment construction operations to evaluate the effective depth of compaction on fine-grained soils.

The proposed work plan will be divided in three phases:
I. Evaluation of the response and effect of compaction operations in fine-grained soils
II. Establish correlations between experimental data and theoretical/numerical predictive models
III. Draft recommendations for optimum lift thickness in Wisconsin embankment construction for coarse and fine-grained soils.

Progress this quarter (includes meetings, work plan status, contract status, significant progress, etc.):
During the past four months, an experimetal program was designed, built and tested. Two types of soil were obtained in order to be monitored under compaction. One soil consists in a well graded sand with silt and the other soil corresponds to a silt. The laboratory tests consist in monitoring the compaction effort applied to the soil and its properties, for each specimen at different lift thickness and compactive effort. A total of 24 tests will be performed, in which 9 has been performed already for the sandy soil.

Anticipated work next quarter:
The anticipated work for the next quarter will consist in the data analysis for the performed tests and the tests that will be performed for the second type of soil as well. The plan is to finish the experimental tests during the next four months. We plan to use these results and the experience with the instrument and data acquision in the field monitoring testing.

Circumstances affecting project or budget:
We really need to get access to a field site early in Spring 2011.

Insert Gantt chart and other project documentation – attach additional pages if necessary
DOT officials were not able to secure access to a testing site during the late Summer an Fall 2010. We will try to schedule the field testing part of the project in early Spring,

Gantt Chart:

Phase Number	1.25 Years (15 months)				
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 5
Phase I	X	X	X (if required)		
Phase II		X	X	X	
Phase III		X	X		
Phase IV					X

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Staff receiving QPR:	Date received:
Staff approving QPR:	Date approved: